

Serial No.: 10/775,058
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Reply to the Office Action of November 30, 2006

Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A video display apparatus with an on-screen display pivoting function, comprising:

an on-screen display (OSD) generating section for receiving horizontal/vertical synchronizing signals and clock signals, and for outputting first video signals in response to OSD control signals;

a pivot circuit section for receiving the first video signals, for storing in a position-converting manner a write address of the first video signals in correspondence with a pre-set pivot write address, and for converting the write address in response to the horizontal/vertical synchronizing signals and the clock signals so as to output the first video signals in the form of second video signals;

a scale converting section for furnishing the horizontal/vertical synchronizing signals and the clock signals to said OSD generating section and said pivot circuit section, respectively, and for receiving the second video signals so as to convert scales of the second video signals in response to scale control signals; and

a control section for furnishing the OSD control signals and the scale control signals to said OSD generating section and said scale converting section, respectively, in response to OSD driving signals, and for furnishing pivot control signals to said pivot control section in response to mode control signals generated by a user.

2. (Original) The video display apparatus as claimed in claim 1, wherein said pivot circuit section comprises:

an R-pivot circuit for receiving R-data signals of the first video signals from said OSD generating section, for storing in a position-converting manner a write address of the R-data signals in correspondence with a pre-set pivot write address in response to the pivot control signals, and for converting the write address in response to the horizontal/vertical synchronizing

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signals and the clock signals so as to output the stored R-data signals in a form of R-data signals of the second video signals;

a G-pivot circuit for receiving G-data signals of the first video signals from said OSD generating section, for storing in a position-converting manner a write address of the G-data signals in correspondence with the pre-set pivot write address in response to the pivot control signals, and for converting the write address in response to the horizontal/vertical synchronizing signals and the clock signals so as to output the stored G-data signals in a form of G-data signals of the second video signals; and

a B-pivot circuit for receiving B-data signals of the first video signals from said OSD generating section, for storing in a position-converting manner a write address of the B-data signals in correspondence with the pre-set pivot write address in response to the pivot control signals, and for converting the write address in response to the horizontal/vertical synchronizing signals and the clock signals so as to output the stored B-data signals in a form of B-data signals of the second video signals.

3. (Original) The video display apparatus as claimed in claim 2, wherein each of said R, G, and B pivot circuits comprises:

an analog/digital converting section for receiving relevant picture data signals of R, G and B data signals, respectively, of the first video signals from said OSD generating section so as to convert them to digital signals;

a buffering section for receiving and storing the picture data signals from said analog/digital converting section, and for outputting previous picture data signals upon receiving next picture data signals from said analog/digital converting section;

a pivot controller for outputting storing position control signals and data selection control signals in response to the pivot control signals of said control section;

a data storing section for receiving and storing the picture data signals of said buffering section, and for storing in a position-converting manner a write address of the picture data signals of said buffering section in correspondence with the pre-set pivot write address in response to the storing position control signals; and

a data selector for receiving one of the picture data signals of the first video signals and

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the picture data signals of said data storing section, and for outputting said one of the picture data signals of the first video signals and the picture data signals of said data storing section in a form of second video signals.

4. (Original) The video display apparatus as claimed in claim 3, wherein said buffering section comprises eight buffers for storing 8-bit picture data signals from said analog/digital converting section.

5. (Original) A video display apparatus with an on-screen display pivoting function, comprising:

- a power supply section for supplying power;

- a display section for receiving the power from said power supply section, and for displaying a picture of externally inputted video signals to a user;

- a signal converter/clock generator section for receiving horizontal/vertical synchronizing signals and video signals, for converting the video signals to first digital signals in response to first control signals, and for generating clock signals;

- a decoder for receiving brightness/chromatic signals, and for converting the brightness/chromatic signals to second digital signals in response to second control signals;

- a frame rate converter section for receiving the horizontal/vertical synchronizing signals and the video signals from said signal converting/clock generator section, for receiving the brightness/chromatic signals from said decoder, for storing the video signals in response to third control signals, and for converting the stored video signals so as to have a certain frequency ratio in correspondence with display characteristics of the display section;

- an on-screen display (OSD) generating section for receiving the horizontal/vertical synchronizing signals and the clock signals, and for outputting first video signals in response to OSD control signals;

- a pivot circuit section for receiving the first video signals, for storing in a position-converting manner a write address of the first video signals in correspondence with a pre-set pivot write address, and for converting the write address in response to the horizontal/vertical synchronizing signals and the clock signals so as to output the first video signals in the form of

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second video signals;

a scale converting section for furnishing the horizontal/vertical synchronizing signals and the clock signals to said OSD generating section and said pivot circuit section, respectively, for converting scales of video signals of said frame rate converting section, and for receiving the second video signals so as to convert scales of the second video signals of said pivot circuit section in response to scale control signals;

a control section for furnishing the first, second and third control signals to said signal converting/clock generating section, said decoder and said frame rate converting section, respectively, for furnishing the OSD control signals and the scale control signals to said OSD generating section and said scale converting section, respectively, in response to OSD driving signals, and for furnishing pivot control signals to said pivot circuit section in response to mode control signals; and

a driving section for furnishing video signals and driving signals from said scale converting section to said display section.

6. (Original) The video display apparatus as claimed in claim 5, wherein said pivot circuit section comprises:

an R-pivot circuit for receiving R-data signals of the first video signals from said OSD generating section, for storing in a position-converting manner a write address of the R-data signals in correspondence with a pre-set pivot write address in response to the pivot control signals, and for converting the write address in response to the horizontal/vertical synchronizing signals and the clock signals so as to output the stored R-data signals in a form of R-data signals of the second video signals;

a G-pivot circuit for receiving G-data signals of the first video signals from said OSD generating section, for storing in a position-converting manner a write address of the G-data signals in correspondence with the pre-set pivot write address in response to the pivot control signals, and for converting the write address in response to the horizontal/vertical synchronizing signals and the clock signals so as to output the stored G-data signals in a form of G-data signals of the second video signals; and

a B-pivot circuit for receiving B-data signals of the first video signals from said OSD

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generating section, for storing in a position-converting manner a write address of the B-data signals in correspondence with the pre-set pivot write address in response to the pivot control signals, and for converting the write address in response to the horizontal/vertical synchronizing signals and the clock signals so as to output the stored B-data signals in a form of B-data signals of the second video signals.

7. (Original) The video display apparatus as claimed in claim 6, wherein each of said R, G and B pivot circuits comprises:

an analog/digital converting section for receiving relevant picture data signals of the R, G and B data signals, respectively, of the first video signals from said OSD generating section so as to convert them to digital signals;

a buffering section for receiving and storing the picture data signals from said analog/digital converting section, and for outputting previous picture data signals upon receiving next picture data signals from said analog/digital converting section;

a pivot controller for outputting storing position control signals and data selection control signals in response to the pivot control signals of said control section;

a data storing section for receiving and storing the picture data signals of said buffering section, and for storing in a position-converting manner a write address of the picture data signals of said buffering section in correspondence with a pre-set pivot write address in response to store position control signals; and

a data selector for receiving one of the picture data signals of the first video signals and the picture data signals of said data storing section, and for outputting said one of the picture data signals of the first video signals and the picture data signals of said data storing section in a form of second video signals.

8. (Original) The video display apparatus as claimed in claim 7, wherein said buffering section comprises eight buffers for storing 8-bit picture data signals from said analog/digital converting section.

9. (Original) The video display apparatus as claimed in claim 5, wherein said

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frame rate converter section comprises:

a frame memory for storing the digital video signals from said signal converter/clock generator section in response to control inputs; and

a frame rate converter for writing the output video signals of said signal converter/clock generator section into said frame memory, and for reading out the video signals written into said frame memory so as to convert the video signals to have a certain frequency ratio in correspondence with display characteristics of said display section.

10. (Original) The video display apparatus as claimed in claim 9, wherein said frame rate converter generates said control inputs and provides said control input to said frame memory.

11. (Original) The video display apparatus as claimed in claim 5, wherein said OSD driving signals are generated by the user.

12. (Original) The video display apparatus as claimed in claim 5, wherein said mode control signals are generated by the user.

13. (Original) A video display apparatus having an on-screen display pivoting function, comprising:

on-screen display (OSD) generating means for outputting first video signals having a write address in response to OSD signals;

pivot circuit means for receiving the first video signals, for converting the write address of the first video signals, and for outputting the first video signal in the form of second video signals having scales;

scale converting means for receiving the second video signals, and for converting the scales of the second video signals in response to scale control signals; and

control means for furnishing the OSD control signals and the scale control signals to said OSD generating means and said scale converting means, respectively, in response to OSD driving signals generated by a user input.

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14. (Original) The video display apparatus as claimed in claim 13, wherein said pivot circuit means comprises:

an R-pivot circuit for receiving R-data signals of the first video signals from said OSD generating means, for storing a write address of the R-data signals in response to pivot control signals generated by said control means, and for converting the write address so as to output the R-data signals in a form of R-data signals of the second video signals;

a G-pivot circuit for receiving G-data signals of the first video signals from said OSD generating means and for converting the write address so as to output the stored G-data signals in a form of G-data signals of the second video signals; and

a B-pivot circuit for receiving B-data signals of the first video signals from said OSD generating means and for converting the write address so as to output the stored B-data signals in a form of B-data signals of the second video signals.

15. (Original) The video display apparatus as claimed in claim 14, wherein each of said R, G and B pivot circuits comprises:

an analog/digital converting section for receiving relevant picture data signals of R, G and B data signals, respectively, of the first video signals from said OSD generating means so as to convert them to digital signals;

a buffering section for receiving and storing the picture data signals from said analog/digital converting section, and for outputting previous picture data signals upon receiving next picture data signals from said analog/digital converting section;

a pivot controller for outputting storing position control signals and data selection control signals in response to pivot control signals from said control means;

a data storing section for receiving and storing the picture data signals of said buffering section, and for storing a write address of the picture data signals of said buffering section in response to the storing position control signals; and

a data selector for receiving one of the picture data signals of the first video signals and the picture data signals of said data storing section, and for outputting said one of the picture data signals of the first video signals and the picture data signals of said data storing section in

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a form of second video signals.

16. (Original) The video display apparatus as claimed in claim 15, wherein said buffering section comprises eight buffers for storing 8-bit picture data signals from said analog/digital converting section.

17. (Original) The video display apparatus as claimed in claim 13, further comprising:
signal converting/clock generating means for receiving horizontal/vertical synchronizing signals and video signals, for converting the video signals to first digital signals in response to first control signals from said control means, and for generating clock signals.

18. (Original) The video display apparatus as claimed in claim 17, further comprising:
decoder means for receiving brightness/chromatic signals, and for converting the brightness/chromatic signal to second digital signals in response to second control signals from said control means.

19. (Original) The video display apparatus as claimed in claim 18, further comprising:
frame rate converting means for receiving the horizontal/vertical synchronizing signals and the first video signals from said signal converting/clock generating means, for receiving the brightness/chromatic signals from said decoder means, for storing the first video signals in response to third control signals from said control means, and for converting the stored first video signals so as to have a certain frequency ratio in correspondence with display characteristics of a display section.

20. (Currently Amended) A method of displaying an on-screen display (OSD) image in a video display apparatus having a screen and a rotatable screen body supporting the screen, the method comprising:

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generating a mode signal indicating a rotated state of the screen body according to manipulation of a key; and

displaying a picture of externally inputted color component video signals on the screen body and displaying the OSD image on the displayed picture, ~~the OSD image containing information about operation of the screen~~ at a rotated position in accordance with the mode signal.

21. (Previously Presented) The method as claimed in claim 20, wherein the mode signal is generated in accordance with a user input indicating the rotated state of the screen body.

22. (Previously Presented) The method as claimed in claim 21, wherein the user input is made by a direct key selection.

23. (Previously Presented) The method as claimed in claim 20, further comprising:
rotating the OSD image in accordance with the mode signal.

24. (Previously Presented) The method as claimed in claim 23, wherein the mode signal is generated in accordance with a user input indicating the rotated state of the screen body.

25. (Cancelled)

26. (Previously Presented) The method as claimed in claim 23, wherein the OSD image rotating operation comprises reordering read sequence of the OSD data which is stored in a data memory.

27. (Previously Presented) The method as claimed in claim 26, wherein the reordering operation is made to form characters and/or symbols represented by the OSD data in

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a perpendicularly rotated manner.

28. (Previously Presented) The method as claimed in claim 23, wherein the OSD image rotating operation comprises reordering read addresses of the OSD data which is stored in a data memory.

29. (Previously Presented) The method as claimed in claim 28, wherein the reordering operation is made to form characters and/or symbols represented by the OSD data in a perpendicularly rotated manner.

30. (Previously Presented) The method as claimed in claim 20, wherein the displaying operation comprises:
reading OSD data contained in the OSD image as first OSD data; and
modifying the first OSD data as second OSD data according to the generated mode signal.

31. (Previously Presented) The method as claimed in claim 30, wherein the modifying operation comprises:
storing a write address of the first OSD data in a predetermined format that corresponds to the rotated position of the screen body.

32. (Previously Presented) The method as claimed in claim 20, wherein the generating operation comprises:
activating a key located on the rotatable screen body.

33. (Canceled)

34. (Currently Amended) A method of displaying a first image including an on-screen display (OSD) in a video display apparatus having a screen and a rotatable screen body, the method comprising:

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receiving an externally input video signal having a second image;
displaying the second image;
modifying OSD data corresponding to the first image including the OSD with respect to a position of the rotatable screen when the screen is rotated, according to a key manipulation; and
displaying the first image that corresponds to the modified OSD data on the second image displayed on the rotatable screen.

35. (Currently Amended) A video display apparatus having a screen body to display an on- screen display (OSD) image, the video display apparatus comprising:
a converter to receive externally inputted video signals having a picture;
a controller to generate a mode signal indicating a rotated state of the screen body according to a key manipulation; and
a circuit unit to display the picture of the externally inputted video signals on the screen body and to display the OSD image ~~containing information about operation of the screen body~~ at a rotated position in accordance with the mode signal on the displayed picture.

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Currently Amended) A method of displaying a first image including an on-screen display (OSD) color component video signal in a video display apparatus having a rotatable screen, the method comprising:
receiving an external color component video signal having a second image;
displaying the second image to the video display apparatus;
modifying OSD data corresponding to the first image including the OSD color component

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video signal with respect to an angle of rotation of the screen when the screen is rotated,
according to manipulation of a key; and

displaying the first image corresponding to the modified OSD data on the second image
displayed on the rotated screen.

41. (Previously Presented) The method as claimed in claim 40, wherein the
angle of rotation of the screen is obtained by rotating the screen in the clockwise or
counterclockwise directions.

42. (Canceled)

43. (Canceled)

44. (Canceled)

45. (Canceled)

46. (Canceled)

47. (Previously Amended) A method of displaying an on-screen display (OSD)
in a video display apparatus having a rotatable screen body associated with one or more screen
function keys that are selectable to change an operational state of the screen body, the method
comprising:

receiving a selection of the one or more screen function keys while the screen body is
powered on and the OSD is not being displayed on the screen body;

generating a mode signal indicating a rotated state of the screen body in response to a
rotation of the screen body; and

selectively displaying the OSD on the screen body in response to the selection of the
one or more screen function keys such that the OSD is displayed at a rotated position when the
mode signal is generated.

48. (Canceled)

49. (Previously Amended) A video display apparatus, comprising:
a rotatable screen having one or more screen function keys that are selectable to change an operational state of the screen when the screen is powered on; and
an on-screen display unit to control the screen to display an on-screen display (OSD) in response to a selection of the one or more screen function keys on the screen, to receive a mode control signal indicating a rotated state of the screen when the screen is rotated, and to modify OSD data corresponding to the OSD with respect to the rotatable screen according to the mode control signal such that the screen displays the modified OSD data,
wherein the rotatable screen does not display the OSD when operating during a first time, and the rotatable screen displays the OSD when operating during a second time following the first time, the second time beginning when the selection of the one or more screen function keys is received.

50. (Canceled)

51. (Canceled)

52. (Currently Amended) A video display apparatus having a rotatable display unit, the video display apparatus comprising:
an external signal unit to receive an external image signal;
an OSD generator to generate an internal OSD image signal;
a control unit to generate a mode signal indicating a rotated state of the display unit according to a key manipulation; and
a circuit unit to drive the display unit to display the external image signal and to drive the display unit to display the internal OSD image signal at a rotated position in accordance with the mode signal generated by the control unit.

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53. (Previously Presented) The video apparatus as claimed in claim 52, wherein the display unit comprises one or more function keys to change operation settings thereof such that the circuit unit drives the display unit to display the internal OSD image signal in response to a selection of the one or more function keys.

54. (Previously Presented) The video apparatus as claimed in claim 53, wherein the display unit comprises:
a screen; and
a rotatable screen body surrounding the screen having the one or more function keys installed thereon.

55. (Currently Amended) A method of controlling a video display apparatus having a rotatable display unit, the method comprising:
receiving an external image signal;
generating an internal OSD image signal;
generating a mode signal indicating a rotated state of the display unit according to manipulation of a function key; and
driving the display unit to display the received external image signal and driving the display unit to display the generated internal OSD image signal at a rotated position in accordance with the generated mode signal.

56. (Previously Presented) The method as claimed in claim 55, further comprising:
enabling selection of one or more function keys of the display unit to change operation settings thereof such that the display unit is driven to display the generated internal OSD image signal in response to a selection of the one or more function keys.

57. (Currently Amended) A video display apparatus having a rotatable display unit to display an image of an external color component video signal, the video display apparatus comprising:

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an OSD generator to generate an internal OSD color component video signal separate from the external color component video signal;

a control unit to generate a mode signal indicating a rotated state of the display unit according to manipulation of a function key; and

a circuit unit to drive the display unit to display the internal OSD color component video signal on the image of the external color component video signal at a rotated position in accordance with the mode signal generated by the control unit.

58. (Previously Amended) The video display apparatus as claimed in claim 57, further comprising:

an external signal unit to receive the external color component video signal such that the circuit unit further drives the display unit to display the external color component video signal with the internal OSD color component video signal.

59. (Currently Amended) A method of controlling a video display apparatus having a rotatable display unit to display an image of an external color component video signal, the method comprising:

generating an internal OSD color component video signal separate from the external color component video signal;

generating a mode signal indicating a rotated state of the display unit according to a key manipulation; and

driving the display unit to display the generated internal OSD color component video signal on the image of the external color component video signal at a rotated position in accordance with the generated mode signal.

60. (Previously Amended) The method as claimed in claim 59, further comprising:

receiving the external color component video signal such that the driving of the display unit to display the generated internal OSD color component video signal at the rotated position in accordance with the generated mode signal further comprises driving the display unit to

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display the received external color component video signal with the generated internal OSD color component video signal.

61. (Previously Presented) The method of claim 34, wherein the displaying of the first image that corresponds to the modified OSD data on the second image displayed on the rotatable screen comprises displaying the first image in a center of the rotatable screen.

62. (Canceled)

63. (Previously Presented) The method of claim 40, wherein the displaying of the first image corresponding to the modified OSD data on the second image displayed on the rotated screen comprises displaying the first image in a center of the rotated screen.

64. (Previously Presented) The method of claim 34, wherein the first image comprises a control window.

65. (Canceled)

66. (Previously Presented) The method of claim 40, wherein the first image comprises a control window.

67. (Previously Presented) The method of claim 34, wherein the first image including the OSD indicates screen viewing settings comprising at least one of a brightness of a screen picture affecting the displayed second image and a size of the screen picture affecting the displayed second image.

68. (Canceled)

69. (Previously Presented) The method of claim 40, wherein the first image including the OSD indicates screen viewing settings comprising at least one of a brightness of a

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screen picture affecting the displayed second image and a size of the screen picture affecting the displayed second image.

70. (New) The video display apparatus as claimed in claim 57, wherein the rotatable display unit displays the OSD image on the screen according to manipulations of another key.

71. (New) A method of displaying an on-screen display (OSD) in a video display apparatus having a screen and a rotatable screen body supporting the screen, the method comprising:

generating a mode signal indicating a rotated state of the screen body; and
displaying a picture of externally input color component video signals on the screen body and displaying an OSD image simultaneously on the displayed picture,

wherein the OSD image is rotated with respect to the screen body in response to the mode signal.

72. (New) A video display apparatus having a screen and a rotatable screen body supporting the screen, the apparatus comprising:

a key unit to generate a mode signal indicating a rotated state of the screen body; and
a display unit to display a picture of externally input color component video signals on the screen body and to display an OSD image simultaneously on the displayed picture,

wherein the OSD image is rotated with respect to the screen body in response to the mode signal.